

VARIABILITY IN TOTAL OZONE DURING SUMMER OF 2004-05 OVER THE ANTARCTIC REGION

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Introduction

Global warming is believed to be primarily due to significant increase in the so-called greenhouse gases of which tropospheric ozone is one important component. Studies have shown that this warming can be nearly 4-5 times more over the poles compared to that at the tropics. Thus the atmosphere over Antarctica is very sensitive to human induced changes in any part of the globe and dynamics of the atmosphere over Antarctica itself seems to modify global weather and climate. Two important problems or concerns of the modern day scientists are the ozone hole and the aforementioned global greenhouse warming; the former already having manifested prominently over Antarctica during the past decade (WMO, 2003), and the latter having started showing indications of its effects at mid and polar latitudes. Thus there is a need to continuously keep monitoring the levels of total ozone and other gas concentrations over this sensitive region of Antarctica. Ever since the establishment of Indian stations Dakhsin Gangotri in 1983-84 and Maitri in 1988-89 at Antarctica, Indian scientists have been very much involved in Antarctic research (Rajaram and Reddy, 1993). Several summer and winter expeditions have been undertaken since the beginning where atmospheric scientists have taken active part in monitoring and studying atmospheric constituents. Results of some studies undertaken in the recent (summer of 2004-05) Antarctic expedition have been discussed in this paper. Extensive observations of total column ozone using an ozonometer have been made over the southern Indian Ocean and over the Antarctica region during the period December 2004-February 2005.